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COULD TECHNOLOGY MAKE THE STOCK MARKET SAFER FOR THE AVERAGE INDIVIDUAL

Abstract:
The stock market has always been seen as a tool that only rich people can use. The average folk sees it with distrust, caution and even fear. Perhaps there are valid reasons that have created this feeling towards the stock market. However, technology has recently made the stock market available to pretty much anyone with $100. Web applications like Robinhood allow people to invest in the stock market without the need of paying for a broker. Many people have taken the risk to invest this way. But is the stock market truly fair for all? The purpose of this study is to see which tools technology has brought to people and which ones are still needed in order for the stock market to be safe and fair for everyone.

Keywords:
Stock market, Web application Robinhood, tools.

For a high majority of people, the stock market is something considered out of reach. In elementary education, there are no classes that teach youngsters about how the stock market really works. In contrast, there is education about how the collapse of the markets were a main cause in the great depression of the 1930's. Moreover, many also heard how their parents lost most of their retirement funds during the 2008 Recession again because of a drop on the stock market.

Despite these negative images, recently there has been an increase in the amount of retail investors. This change has been caused in great part by technology. Social media for instance, has changed the way people inform themselves. There are many social media providers like Facebook, Instagram, and Twitter where users go in not just to communicate with their friends (as it was the main purpose of such platforms), but they go in there to search for information. Today people can get news on their mobile cell phones.

Another impact that technology had on the stock market was giving the ability to the average joe to trade from their mobile devices. In the past people had to go through a broker in order to invest money on the stock market. The power of technology that brought us social media also brought us mobile applications where you can invest by yourself. All you need to do is make a deposit of the amount you wish and you can buy shares of stock in many companies. Some of these apps include Robinhood and Webull. Their theme was to give power to the people to do the same thing rich people usually do. These apps became extremely popular during the Pandemic. However, these apps could really help the average person if they added some tools that allowed people to avoid risks.

The main difference between this study and the one performed in [1,2] is the purpose. The main goal of the "Detecting Stock Market Manipulation using Supervised Learning Algorithms" article was to detect manipulation in order to avoid the losses to companies that derive from manipulation. As they mention in their study on average companies pay $120 million dollars per year on fines and compensations related to stock manipulation. Market manipulation schemes involve individuals, or a group of people attempting to interfere with a fair and orderly market to gain profit.

In contrast to this goal, our main goal is to make the stock market fair for the average person. Those who are more vulnerable to losing smaller amounts of money but that represent a much higher percentage of their income than those millionaires cheating the system.

This research focuses on explaining what the stock market is, how people invest in it and what are the factors that make people either win or lose their money. The most basic thing about the stock market is that a company's ownership goes public and people can buy shares of ownership (or shares of stock) for such a company. Now, what is important in the matter is the price of such shares and how they can increase or decrease. While many would believe that the price of the stock of a company should depend solely on how profitable the company is, the reality is that at times that is not the main factor. The prices of stocks can change based on aspects like manipulation, rumors among other reasons. The Securities Exchange Commission (SEC) was established in 1934 to eliminate manipulation [1]. Some forms of manipulation are illegal and can be penalized, there are others that for some reason are completely legal. An example of an illegal manipulation would be the spread of fake news in purpose to either benefit or affect a stock. This could be done by both owners of a stock or owners of a competing company. Spreading bad news about a rival company could directly benefit your company's stock price. Likewise, spreading good news about your own company could increase your own value and profits. But there are other forms of manipulation that are still legal. For instance, the infamous shorting. Shorting is basically the option for people and companies to bet that a certain stock price will drop to a specific price in a specific time frame. This is obviously an incentive for those who purchase such options to want the value of that stock to decrease. Problem is that hedge funds who have pretty much unlimited resources tend to do this practice all the time. What this causes is that any stock that they choose drops regardless of good news or good financial standing of a company. In many countries this practice is illegal but in the US for an unknown reason (or perhaps an obvious one) it is still fully legal.

The main goal is to use technology to really help the retail investors. While now they have the option to invest from home, there is valuable information that should be made available to them. My goal is to use some algorithms to detect and show 2 of the main factors that can manipulate the price of a stock. The first one, is that apps should be able to detect when companies are using artificial technology to make prices drop. There are computer programs that can make many transactions in matters of seconds in order to keep the price of a stock up or down. As an example, if a company (or several companies) that owns a high percentage of the shares of stock for a company puts sell orders on their shares this causes the price to drop. What is very common is that they set a certain price for their orders, and before the stock reaches such a price the same program cancels the order. And the process is done over and over again. A normal person can only perform a limited amount of transactions per minute. Therefore, the use of such algorithms creates a disadvantage for them. By letting investors know such programs are being used in the stock of a certain company they can decide if they want to risk their money there or go somewhere else. The other main piece of information that should be disclosed in these investing apps, is the ownership of a company. For this, a simple data analysis performed on python using pandas for instance could do the job. The main focus is to get the ownership data to analyze it in python and show who owns stocks. The purpose of this is to be able to see how many shares of a certain stock are owned by hedge fund companies. This is also a source of information that can allow people to analyze the risk that a stock can be manipulated and shorted. At this point such information none of the 2 pieces of information I am seeking are included on apps like Robinhod or Webull.

Conclusion

The results of the study made by David Diaz [2] were not fully positive. Their idea of searching for data manipulation based on using data mining techniques was certainly promising. However, as it was explained by them, their method of using one data set of a stock that had feen manipulated and proven in court can be questioned for the simple fact of basing it only on a simple set of data. In contrast to this method, our idea is to add a tool on the existing (or create a new) online brokers applications. This tool would also use data mining but perhaps we plan to look at the ownership part of the data. Letting investors know who owns the stock is a way for them to be able

to foresee possible manipulation from big hedge funds companies. Moreover, another tool using algorithms to detect transactions that are done by computers is another way to help find stock manipulation. Perhaps this is a more complex step as there are millions of transactions daily on a single company.

References:

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